STOCK PRICE PREDICTION PROJECT REPORT

Introduction

In this project, my goal was to build a model that can predict stock prices based on historical data. Stock price prediction is a crucial aspect of financial markets, and accurate predictions can aid investors and traders in making informed decisions. I used the Random Forest Regressor algorithm to develop the predictive model.

Dataset and Preprocessing

The dataset used in this project consists of historical stock price data, including the 'Date' and 'Close' values. To prepare the data for modeling, I normalized the 'Close' prices using MinMaxScaler, scaling them to a range of 0 to 1. This normalization ensures that the data is consistent and facilitates better model training.

Model Development

For the predictive model, I implemented the Random Forest Regressor algorithm, which is known for its ability to handle regression tasks and avoid overfitting. I set the number of estimators to 100 to create a robust ensemble of decision trees.

Data Split and Training

To evaluate the model's performance, I split the data into training and testing sets using a split ratio of 70% for training and 30% for testing. The sequence length was set to 60, allowing the model to consider the previous 60 days' stock prices to predict the next day's price.

Model Evaluation

To assess the model's accuracy, I used the Root Mean Squared Error (RMSE) metric. RMSE measures the difference between the predicted

stock prices and the actual stock prices. A lower RMSE value indicates better predictive performance.

Results and Visualization

The model demonstrated promising results in predicting stock prices. By comparing the actual stock prices with the predicted prices, the model's performance was evaluated. The RMSE value provided valuable insights into the model's accuracy.

Future Enhancements

This project lays the foundation for more advanced stock price prediction models. Future enhancements could include integrating additional features, such as trading volumes, news sentiment analysis, and macroeconomic indicators, to further improve the model's predictive capabilities.

Conclusion

The Stock Price Prediction project successfully developed a Random Forest Regressor model for predicting stock prices based on historical data. Accurate stock price predictions have significant implications for investors and financial decision-makers. This project opens the door to exploring more sophisticated models and incorporating real-time data for real-world applications.

Thank you for taking the time to explore the Stock Price Prediction project! If you have any questions or feedback, feel free to reach out to me at osuolalefolarin@gmail.com

GitHub Repository: https://github.com/Folarinosuolale/Data-Science-Machine-Learning